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Export performance in Eastern Europe

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Abstract

The crisis that started three years ago in the Asian NICs, the financial and economic turmoil in Russia and the contagion to other emerging countries have had an important impact on the world economy. Trade flows in Eastern Europe have also been affected. Carrying out a constant market share analysis in order to get a general overview of the trade patterns of Eastern European countries in the period immediately preceding the crisis allows us to provide some insights into the specific issue of trade channel transmission in the perspective of EU enlargement.

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1 Introduction

The crisis that started three years ago in the Asian NICs, the financial and economic turmoil in Russia and the contagion to other emerging countries have had an important impact on the world economy. The trade linkages were an important channel of transmission (Glick and Rose, 1999). Trade flows in Eastern Europe have also been affected. Within this context, an interesting question was whether Eastern Europe's pattern of specialisation played any significant role in determining its relative export performance. This paper presents a general overview of the structural trade patterns of the Central European countries and the former Soviet Union[1] during the period immediately preceding the crisis.

World trade during the period 1991-1997 was characterised by a strong annual growth rate and an increasing involvement by the Asian countries and the Eastern European countries in transition. While country market shares of world trade decreased both in Japan and in the European countries under review, the United States and especially the Asian NICs[2], the Central European countries and the former Soviet Union achieved increasing market shares.

In 1997, the growth in the volume of world trade was 10%, one of the fastest rates of growth in the last decade according to the World Trade Organisation (OMC, 1998). The Americas (North and South) had strong economic growth and this fuelled the expansion in world trade during this period. The value of European trade expressed in dollars fell in 1997, but when expressed in ECUs it increased by 11%. The impact of the Asian crisis on world trade occurred with a time lag. The immediate effect of the financial crisis (which started in July 1997) and the following adjustment policies carried out by the different governments was a significant slowdown in domestic demand, which via trade linkages, spilled over to other countries. The decline in the Asian NICs imports during

[1] *Ex-USSR* = Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Uzbekistan, Russia, Tajikistan, Turkmenistan, Ukraine; *Central Europe* = Albania, Bulgaria, Hungary, Poland, Romania, Ex-Czechoslovakia (then Czech Republic and Slovakia)

[2] *Asian NICs* = Hong-Kong, Singapore, South Korea, Taiwan, Malaysia, Thailand, Philippines, Indonesia

the second half of 1997 had an initial impact on intra-regional trade and also on raw materials markets that were more sensitive to Asian demand. Total trade flows with the rest of the world were then also affected. The strong economic growth of the Asian economies in the years prior to the crisis had resulted in a considerable rise in the demand for imports from industrialised countries. Asian economies were an important export market for these countries. These trade relations had become particularly important for Japan. They also represented a large share of the United States' exports but were a much lower proportion of exports for most European countries.

TABLE 1 - Geographical distribution of exports from Eastern Europe (1991-1997)

	Central Europe		Ex-USSR	
In % of total	In 1997	In 1991	In 1997	In 1991
NorthAm	4.42	2.70	5.93	1.98
SouthAm	1.28	4.05	2.65	7.92
EU15	68.61	54.66	43.47	45.29
EastEur	15.14	22.63	19.08	20.29
OtherEur	3.26	3.67	5.85	4.17
Afr-ME	3.43	6.20	4.67	2.91
Japan	0.71	1.27	4.48	6.07
SEAsia	3.01	4.62	13.84	11.31
OtherAsia	0.15	0.20	0.02	0.06
Total[1]	100.00	100.00	100.00	100.00

Source: Own calculations based on CHELEM database, CEPII , Paris.

Note: [1]Total exports do not include the intra-regional trade, i.e. trade among the Central European countries, and trade among the Republics of the former Soviet Union.

The Central Europe's geographical export pattern (Table 1) reflects its reorientation of trade towards the West, especially the European Union countries. According to the CHELEM database, exports to the EU15 accounted for about 68% of Central Europe's total exports in 1997, with Germany being the most important export market for Central European countries. The importance of trade relations between Central Europe and the European Union demonstrates the high degree of integration that these countries have reached with Europe. This geographical concentration of trade can however be a source of vulnerability due to the sensitivity to cyclical fluctuations in the neighbouring countries. Among other regions of the world, the former Soviet Union remains an important trading partner, while the group of the Asian countries (including China and India) and the countries of North and South America represent relatively small markets for the Central European countries.

The former Soviet Union's geographical export pattern (Table 1) reflects a more diversified orientation of trade. Exports towards the the EU countries, account for about 43% of the former Soviet Union's total exports in 1997. Exports to the Central European countries still represent 19% of the total and the group of the Asian countries (including China and India) account for about 14% of total exports. The countries of North and South America represent smaller markets for the former Soviet Union.

TABLE 2 - Sector distribution of exports from Eastern Europe (1991-1997)

	Central Europe		Ex-USSR	
In % of total	In 1997	In 1991	In 1997	In 1991
Energy	4.13	8.27	31.52	46.83
Food industry	9.17	18.21	11.91	9.97
Textile	16.31	14.89	3.53	1.04
Wood & paper	8.71	7.53	2.16	1.71
Chemical	13.02	16.99	7.77	7.23
Steel industry	6.84	9.17	13.86	4.63
Non ferrous	3.89	4.47	15.19	9.95
Mechanical	14.40	10.39	2.29	5.14
Vehicles	8.01	3.47	0.61	2.71
Electrical	8.51	4.18	0.58	1.94
Electronics	5.95	1.35	0.81	0.47
Others	1.07	1.09	9.75	8.38
Total[1]	100.00	100.00	100.00	100.00

Source: Own calculations based on CHELEM database, CEPII , Paris.

Note: [1]Total exports do not include the intra-regional trade, i.e. trade among the Central European countries, and trade among the Republics of the former Soviet Union.

The Central Europe's sector export pattern (Table 2) reflects the importance of three groups of products: textile, chemical products, and mechanical products. The sectors of wood and paper, vehicles and electrical products also represent substantial shares of exports. Central Europe's exports are rather weak in the electronics sector, one of the most rapidly expanding sectors of world trade. This situation has improved during the period under review. However, if we compare Central Europe with the Asian NICs, these countries show much larger trade shares of the electronics sector.

The former Soviet Union's sector export pattern (Table 2) reflects its concentration of trade on energy and raw materials (non ferrous), food industry, steel industry, and other products (including diamonds).

2 Data and methodology

In order to examine the relative export performance of the Central European countries and the former Soviet Union, we have carried out a constant market shares analysis (CMSA). This analysis is an accounting method for decomposing ex-post a country's aggregated export share development. The methodology developed by Milana (1988) has been followed because it aims at finding a satisfactory solution to the problems encountered by the traditional approaches to CMSA (Richardson, 1971a and 1971b). According to this new formulation of the methodology, percentage changes in the aggregated export market share of a country, defined as the percentage ratio between the country's exports and total world exports, have been disaggregated into four components :

- A « competitiveness effect », which reveals the capacity of a country to increase its market share due to competitiveness factors only, independently of structural developments in the market or in the product trade pattern. It is calculated by aggregating the export share changes of a country for each market and for each product, weighted by the relative import shares of the partner countries in total world trade.

- A « market effect », which measures the effect stemming from the geographical breakdown of a country's exports. It is calculated by aggregating the individual market share changes in total world trade, weighted by the export shares of the country concerned on these geographical markets.

- A « product effect », which defines the influence of the product composition of a country's exports. It is calculated by aggregating the individual product share changes in total world trade, weighted by the export shares of the country concerned for these product markets.

- A « residual effect », which embodies all the second-order factors. It represents the positive or negative impact of particular market-product combinations in comparison to the market and product mean distribution of a given country's exports.

The competitiveness effect summarises the changes in price competitiveness (assessed by the real effective exchange rate) as well as changes in non-price competitiveness (expressed by qualitative factors reflecting product differentiation) in the export performance. The sum of the other three effects represents the "structural change" effect due mainly to changes in the market and in the product pattern of specialisation of a country.

The CMSA formulation used in this paper is the version developed by Milana (1988)[3]. It was computed over the period 1991-1997 at the most disaggregated level available using the CHELEM database (i.e. 72 sectors and 62 countries or areas) in order to get the best information to evaluate the four different effects. The CHELEM database provides data on values expressed in dollars. It is impossible to distinguish between the volume and the price components in the evolution of the market shares. Therefore, the interpretation of the results should be made with extreme caution, as changing exchange rates and prices have an impact on price competitiveness and on export performance.

3 Results of the CMSA (1991-1997)

First, we present the global results for the Central European countries and the former Soviet Union. They are compared to those of their main European trading partners (Germany, France, the Netherlands, United Kingdom and Italy), as well as the United States, Japan and the Asian NICs. Following this, the overall change in export market shares is disaggregated further to take account of the geographical trade patterns and the sector trade patterns of the countries considered.

3.1 CMSA (1991-1997) - Global results

The global results for each country presented in Table 3 are expressed in absolute terms. They are the sum on the rows and the columns of the components resulting from the decomposition method. They are also expressed as a percentage of 1991 export shares

[3]However, the CMSA was carried out without subdividing the period under review (1991-1997) into shorter intervals, as suggested by Milana (1988).

(in Table 4) in order to get the contribution of each effect to the rate of change of exports, and to compare the performance of the different countries.

In the period under review, Central Europe's global export market share increased from 1.2% in 1991 to 1.5% in 1997. As shown in Table 4, this was mainly the result of the positive contribution of the competitiveness effect (+33.4% of 1991 export share). In the early stages of the process of transition, the impact of the sharp initial currency devaluations, which accompanied the liberalisation of trade, on the competitiveness of domestic manufacturers served to prop-up demand in order to offset the effects of economic recession. It also facilitated the reorientation of trade towards the West following the collapse of intra-CMEA flows. The negative contribution of the market specialisation effect was substantial (-11.1%) while the negative contribution of the product specialisation effect was of lesser importance. This means that - during the period under review - the geographical orientation of Central Europe's exports has been mainly towards markets with a lower growth rate relative to world trade growth. However, the positive contributions of the competitiveness effect and the residual effect were sufficient to compensate for the remaining effects.

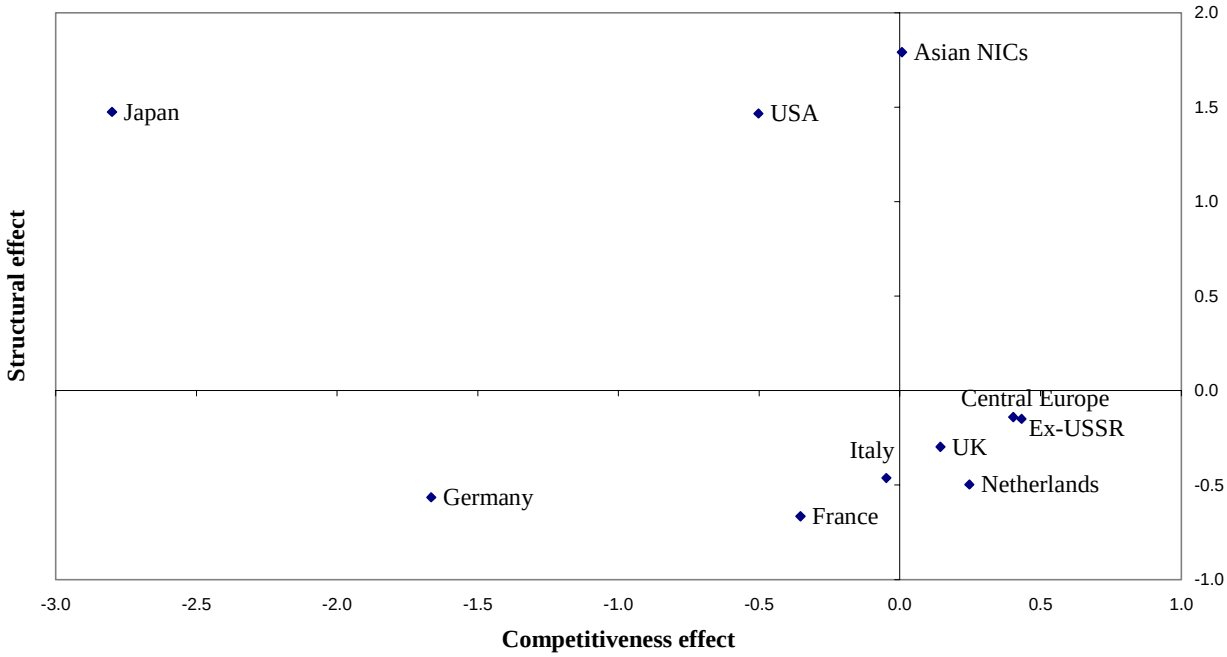
The global export market share of the former Soviet Union increased from 1.5% in 1991 to 1.8% in 1997. As shown in Table 4, this was also mainly the result of the positive contribution of the competitiveness effect (+28.7% of 1991 export share). The negative contribution of the product specialisation effect was substantial (-10.35%) while the contribution of the market specialisation effect was positive but of lesser importance. This means that - during the period under review - the sector orientation of the exports of the former Soviet Union has been mainly towards products with a lower growth rate relative to world trade growth. The positive contributions of the competitiveness effect and the market specialisation effect were sufficient to compensate for the remaining effects.

Table 3 - Global results of the CMSA (1991-1997) in absolute terms

	Export market share		(1)	(2)	(3)	(4)	(5)
	1997	1991	total	compet.	market	product	residual
Germany	10.613	12.840	-2.227	-1.666	-0.909	0.250	0.094
France	5.690	6.707	-1.017	-0.353	-0.716	-0.031	0.082
Netherlands	3.824	4.078	-0.254	0.247	-0.460	-0.019	-0.018
United	5.607	5.756	-0.149	0.144	-0.412	0.075	0.039
Italy	4.718	5.238	-0.520	-0.048	-0.450	-0.048	0.035
USA	14.551	13.563	0.988	-0.502	1.140	0.450	-0.123
Japan	8.528	9.851	-1.323	-2.800	1.026	0.595	-0.147
Asian NICs	11.188	9.400	1.788	0.007	1.085	0.630	0.077
Central Europe	1.474	1.207	0.267	0.403	-0.134	-0.057	0.051
Ex-USSR	1.804	1.505	0.299	0.432	0.057	-0.156	-0.052

Source: Own calculations based on CHELEM database, CEPII, Paris
Notes:
Ex-USSR = Armenia, Azerbaidjan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Uzbekistan, Russia, Tajikistan, Turkmenistan, Ukraine
Central Europe = Albania, Bulgaria, Hungary, Poland, Romania, Ex-Czechoslovakia (then Czech Republic and Slovakia)
Asian NICs = Hong-Kong, Singapore, South Korea, Taiwan, Malaysia, Thailand, Philippines, Indonesia

Figure 1 - Global results of the CMSA (1991-1997) - in absolute terms



Source: Own calculations based on CHELEM database, CEPII, Paris
Note: The structural effect is the sum of the market effect, the product effect, and the residual effect.

Table 4 - Global results of the CMSA (1991-1997) in percentage of the 1991 exports

	Export market share		(1)	(2)	(3)	(4)	(5)
	1997	1991	total	compet.	market	product	residual
Germany	10.613	12.840	-17.3	-13.0	-7.1	2.0	0.7
France	5.690	6.707	-15.2	-5.3	-10.7	-0.5	1.2
Netherlands	3.824	4.078	-6.2	6.1	-11.3	-0.5	-0.4
United	5.607	5.756	-2.6	2.5	-7.2	1.3	0.7
Italy	4.718	5.238	-9.9	-0.9	-8.6	-0.9	0.7
USA	14.551	13.563	7.3	-3.7	8.4	3.3	-0.9
Japan	8.528	9.851	-13.4	-28.4	10.4	6.0	-1.5
Asian NICs	11.188	9.400	19.02	0.08	11.54	6.70	0.82
Central Europe	1.474	1.207	22.16	33.40	-11.10	-4.75	4.22
Ex-USSR	1.804	1.505	19.87	28.73	3.78	-10.35	-3.42

Source: Own calculations based on CHELEM database, CEPII, Paris
Notes:
Asian NICs = Hong-Kong, Singapore, South Korea, Taiwan, Malaysia, Thailand, Philippines, Indonesia

By contrast, in the case of Germany, the negative competitiveness effect (-13%) was the main driving force behind the fall in the export market share. Moreover, this effect was accompanied by a negative market effect (-7.1%), while the positive effect of German commodity specialisation was not sufficient to compensate for these adverse effects. This resulted in a sizeable fall in Germany's export market share from 12.8% in 1991 to 10.6% in 1997 (i.e. -17.3% of 1991 export share). In the case of France, the large negative contribution of market specialisation was reinforced by the impact of a negative competitiveness effect and of a small negative product effect, explaining the reduction in its export market share from 6.7% in 1991 to 5.7% in 1997. Only the residual effect had a positive contribution. In the case of the Netherlands, the negative contribution of market specialisation was accompanied by a small negative contribution of the product effect. However, the positive competitiveness effect reduced the impact of these negative effects. This is the reason behind the rather limited decrease in the export market share from 4.078% in 1991 to 3.824% in 1997. Between 1991 and 1997, the United Kingdom registered the smallest decrease in the export market share among the European countries considered. This was the result of opposing forces: the negative influence of the market specialisation effect was partially offset by the combined positive influence of the competitiveness effect and the product effect. In the case of Italy, the global export market share decreased from 5.2% in 1991 to 4.7% in 1997. This was mainly the result of the negative contribution of the market effect (-9.9% of 1991

export share), while the negative contributions of the competitiveness effect and the product specialisation effect were of lesser importance.

In the United States, the combination of the positive market and product specialisation effects more than compensated for the negative impact from the competitiveness effect. The global export market share increased from 13.6% in 1991 to 14.6% in 1997.

By contrast, in Japan these positive effects were insufficient to compensate for the substantial loss in competitiveness. This was the main reason behind the substantial fall in the global export market share from 9.8% in 1991 to 8.5% in 1997.

In the Asian NICs, all the effects have combined their positive influence, so that the global export market share increased from 9.4% in 1991 to 11.2% in 1997 (i.e. +19.3% of 1991 export share). The main contributions to this global result came from the positive market and product effects, while the positive impact of the competitiveness effect and the residual effect were very small.

3.2 Central Europe and the former Soviet Union: CMSA (1991-1997) - Contributions of the different geographical areas

The overall change in export market shares has been disaggregated further to take account of the geographical trade patterns of the countries considered. As a result, the following tables present, for each country, the contributions of the different areas to the global results presented in Table 3. They correspond to the sum on the columns of the components resulting from the decomposition method. They are expressed in absolute terms.

In the wake of the de facto disintegration of the CMEA (Council for Mutual Economic Assistance) in mid-1990, following the introduction of dollar-based settlements, the switch-over to world prices in intra-CMEA trade from the 1 January 1990 and the economic difficulties of the former Soviet Union, trade both between the Central European countries and with the former Soviet Union collapsed. This collapse of intra-CMEA trade is one of the causes of the deep recession which hit the Central European countries and the former Soviet Union at the beginning of the transition process.

The high level of trade in the CMEA area and its scheme of specialisation made these economies highly interdependent although this situation varied from country to country. By 1989, trade with the West already represented half of the total trade flows of Poland and Hungary, but only 35% in the case of Czechoslovakia. This situation was accompanied by a dependence on the Soviet Union, the principal supplier of energy and raw materials and an important outlet for manufactured products, machinery and capital goods. Central Europe's exports to the industrialised countries were concentrated on traditional products, raw materials and energy-intensive products.

The liberalisation of trade and the abandonment of the traditional CMEA trading system meant an end to preferential trading links and a reorientation of trade towards the West. In view of its geographical proximity, the European Union rapidly became the main outlet for the exports and a source of consumer and capital goods supplies. The share of the EU in Central Europe's trade flows increased rapidly between 1988 and 1992, whereas that of the former Soviet Union fell dramatically. With the Europe Agreements, the Central European countries opted for a strategy of free trade vis-à-vis the EU, ultimately designed to open the door to full EU membership.

These evolutions are reflected in the results presented in Table 5 and Table 6.

Table 5 - Central Europe: CMSA (1991-1997) - Geographical breakdown

	Export market share		(1)	(2)	(3)	(4)	(5)
	1997	1991	total	compet.	market	product	residual
NorthAm	0.065	0.033	0.033	0.025	0.007	0.000	0.001
SouthAm	0.019	0.049	-0.030	-0.032	0.008	-0.003	-0.003
EU15	1.011	0.659	0.352	0.554	-0.191	-0.031	0.018
EastEur	0.223	0.273	-0.050	-0.100	0.036	-0.013	0.026
OtherEur	0.048	0.044	0.004	0.000	0.005	-0.003	0.001
Afr-ME	0.050	0.075	-0.024	-0.011	-0.012	-0.004	0.003
Japan	0.010	0.015	-0.005	-0.004	0.000	0.000	0.000
SEAsia	0.044	0.056	-0.011	-0.029	0.014	-0.003	0.005
OtherAsia	0.002	0.002	0.000	0.000	0.000	0.000	0.000
Total	1.474	1.207	0.267	0.403	-0.134	-0.057	0.051

Source: Own calculations based on CHELEM database, CEPII, Paris

Table 6 - Ex-USSR : CMSA (1991-1997) - Geographical breakdown

	Export market share		(1)	(2)	(3)	(4)	(5)
	1997	1991	total	compet.	market	product	residual
NorthAm	0.107	0.030	0.077	0.072	0.009	-0.006	0.002
SouthAm	0.048	0.119	-0.071	-0.070	0.007	-0.008	0.000
EU15	0.784	0.682	0.103	0.274	-0.157	-0.067	0.051
EastEur	0.344	0.305	0.039	0.026	0.141	-0.034	-0.099
OtherEur	0.106	0.063	0.043	0.035	0.012	-0.007	0.000
Afr-ME	0.084	0.044	0.041	0.052	-0.010	-0.006	0.005
Japan	0.081	0.091	-0.011	0.017	-0.003	-0.009	-0.015
SEAsia	0.250	0.170	0.079	0.027	0.057	-0.017	0.005
OtherAsia	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Total	1.804	1.505	0.299	0.432	0.057	-0.156	-0.052

Source: Own calculations based on CHELEM database, CEPII, Paris

- The main result concerning the **total effect** is related to the important role that the countries of the EU15 have in explaining the total gain of export market by the Central European countries. This influence came from the combined positive contribution of the competitiveness effect and the negative contributions of the market effect, and, to a lesser extent, the product effect. In the case of the former Soviet Union, the influence of the EU15 is also predominant but the other groups of countries also play an important role.

- Concerning the **competitiveness effect**, the Central European countries registered a positive contribution from the countries of the EU15 and, to a lesser extent, from the countries of North America. The contributions from other areas were negative. The global competitiveness effect was nonetheless positive. In the case of the former Soviet Union, the major positive contribution also came from the countries of the EU15. However, the global positive competitiveness effect was the result of the positive contributions of each area, with the exception of South America.

- Concerning the **market effect**, it appeared that the main trading partners of the Central European countries, the countries of the EU15, induced a negative market effect, while the contributions from the other areas were slightly positive. As a result, the global market effect was nonetheless negative. In the case of the former Soviet Union, the major negative contribution also came from the countries of the EU15. However, the positive contributions from the Central European countries and

the Asian countries were sufficient to offset the negative contribution from the EU15. The global market effect was therefore positive.

- The global **product effect** for the Central European countries was negative due to the negative contributions from the EU15 and the former Soviet Union. In the case of the former Soviet Union, the negative global product effect was more substantial and was the result of the negative contributions of each area, especially that of the EU15, the Central European countries and the Asian countries.

- Concerning the **residual effect**, the Central European countries registered a positive contribution of each area, especially that of the EU15 and the Central European countries, with the exception of South America. The global residual effect was positive. In the case of the former Soviet Union, the global residual effect was negative due to the negative contributions from the Central European countries and Japan.

3.3 Central Europe and the former Soviet Union: CMSA (1991-1997) - Contributions of the different sectors

The overall change in export market shares has also been disaggregated to take account of the commodity trade patterns of the countries considered. As a result, for each country, the following tables present the contributions of the different sectors to the global results presented in Table 3. They correspond to the sum on the rows of the components resulting from the decomposition method. They are expressed in absolute terms.

The collapse of intra-CMEA trade in 1991 was further accompanied by significant changes in the sector composition of the trade flows of the Central European countries and the former Soviet Union. The share of machinery and capital goods in intra-CMEA trade flows plummeted. The share of energy and raw materials in imports from the former Soviet Union greatly increased in value, reflecting the price increase of these products on a dollar basis and a certain inelasticity of domestic demand. Trade with other ex-CMEA countries collapsed. As for trade between the EU and Central Europe, empirical studies generally indicate that, during the period 1988-1992, no major sector realignment took place, with trade remaining concentrated on exports from sectors with

a high intensity of labour. However, the figures posted by a number of Central European countries (in particular Hungary) in trade with the EU since 1992 indicate a certain degree of product diversification in the exports. By contrast, the share of energy and raw materials in exports from the former Soviet Union remains first in importance.

These evolutions are reflected in the results presented in Table 7 and Table 8.

Table 7 - Central Europe: CMSA (1991-1997) - Sector breakdown

	Export market share		(1)	(2)	(3)	(4)	(5)
	1997	1991	total	compet.	market	product	residual
Energy	0.061	0.100	-0.039	-0.022	-0.004	-0.018	0.005
Food industry	0.135	0.220	-0.085	-0.072	-0.013	-0.023	0.022
Textile	0.240	0.180	0.061	0.088	-0.029	-0.010	0.012
Wood & paper	0.128	0.091	0.038	0.037	-0.016	0.002	0.013
Chemicals	0.192	0.205	-0.013	0.015	-0.014	-0.011	-0.003
Steel industry	0.101	0.111	-0.010	0.021	-0.002	-0.014	-0.014
Non ferrous	0.057	0.054	0.003	0.007	-0.006	-0.002	0.004
Mechanical	0.212	0.125	0.087	0.117	-0.020	-0.006	-0.003
Vehicles	0.118	0.042	0.076	0.078	-0.011	-0.002	0.011
Electrical	0.125	0.050	0.075	0.068	-0.012	0.014	0.003
Electronics	0.088	0.016	0.071	0.068	-0.005	0.008	0.000
Others	0.016	0.013	0.003	-0.001	-0.002	0.004	0.001
Total	1.474	1.207	0.267	0.403	-0.134	-0.057	0.051

Source: Own calculations based on CHELEM database, CEPII, Paris

Table 8 - Ex-USSR : CMSA (1991-1997) - Sector breakdown

	Export market share		(1)	(2)	(3)	(4)	(5)
	1997	1991	total	compet.	market	product	residual
Energy	0.569	0.705	-0.136	0.042	0.006	-0.116	-0.073
Food industry	0.215	0.150	0.065	0.081	0.011	-0.036	0.009
Textile	0.064	0.016	0.048	0.049	0.000	-0.002	0.002
Wood & paper	0.039	0.026	0.013	0.009	0.002	-0.001	0.003
Chemicals	0.140	0.109	0.031	0.043	0.012	-0.016	-0.008
Steel industry	0.250	0.070	0.180	0.162	0.024	-0.016	0.010
Non ferrous	0.274	0.150	0.124	0.110	0.008	-0.006	0.010
Mechanical	0.041	0.077	-0.036	-0.027	-0.001	-0.004	-0.005
Vehicles	0.011	0.041	-0.030	-0.036	0.002	-0.001	0.003
Electrical	0.011	0.029	-0.019	-0.014	-0.003	0.004	-0.006
Electronics	0.015	0.007	0.008	0.006	0.000	0.002	-0.001
Others	0.176	0.126	0.050	0.008	-0.004	0.037	0.005
Total	1.804	1.505	0.299	0.432	0.057	-0.156	-0.052

Source: Own calculations based on CHELEM database, CEPII, Paris

- The main point concerning the **total effect** for Central Europe is the role of a few sectors (mechanical products, vehicles, electrical products, electronics, textile, wood and paper) in explaining the total gain of export market share. This positive influence was mainly the result of a positive competitiveness effect. A loss in export market share was registered in the sector of energy, food industry, chemical industry and steel industry. In the sector of energy and food industry, this was due to the negative influence of the competitiveness, market and product effects while the residual effect was positive. In the case of the chemical industry and steel industry, this was due to the negative influence of the market, product and residual effects, while the competitiveness effect was positive. In the case of the former Soviet Union, the total gain of export market share was mainly due to the positive contributions from the steel industry and the non ferrous sector. This positive influence was mainly the result of a positive competitiveness effect. The market effect was positive in almost each sector but the product effect was negative

- Concerning the **competitiveness effect**, the Central European countries registered a positive contribution from each sector, with the exception of the food industry and the energy sector. But the global competitiveness effect was nonetheless positive. The former Soviet Union also registered a positive contribution from each sector, with the exception of the sectors of mechanical and electrical products and vehicles.

- The global **market effect** was negative for the Central European countries. It was the result of the negative contributions of each sector. For the former Soviet Union the market effect was positive, due to a positive contribution from each sector, with the exception of the sectors of mechanical and electrical products and "others".

- The global **product effect** registered by the Central European countries was negative. The positive contributions from a few sectors (mainly electric products and electronics) were offset by the negative contributions from more traditional industries (notably, textile and steel industry) but also chemicals, as well as negative contributions from energy and food industry. In the case of the former Soviet Union, the negative product effect was substantial, as a result of the negative contributions of each sector, with the exception of the “others” sector.

- Concerning the **residual effect**, the Central European countries registered a global positive effect while the former Soviet Union registered a negative one.

4 Conclusion

An interesting result of the paper suggests that the overall export performance of the Central European countries and the former Soviet Union, during the period 1991-1997, has been mainly influenced by a favourable competitiveness effect. The geographical specialisation has played the main negative role in the case of the Central European countries, but the product effect was also negative. By contrast, the former Soviet Union suffered from an unfavourable product specialisation, but benefited from a positive market effect. The contribution of the residual effect was slightly positive for the Central European countries but slightly negative for the former Soviet Union.

The geographical specialisation has also played a negative role for the main European trading partners of the Central European countries and the former Soviet Union (Germany, France, the Netherlands, the United Kingdom and Italy). Indeed, the main reason behind their loss in export market share was related to the negative contribution of the market effect. This was due to the high degree of intra-EU15 trade in a period during which the rate of economic growth in the EU15 was lower than total world growth rate. Only in the case of Germany was the negative contribution of the competitiveness effect still more important than the market effect. By contrast, some European countries registered an important positive contribution of the competitiveness effect (the Netherlands and the United Kingdom). Some European countries also registered a moderate positive contribution of the product effect (Germany and the United Kingdom).

In comparison with the Asian NICS, the export performance of the Central European countries and especially the former Soviet Union was hindered by the unfavourable product specialisation, in particular a much lower export share in the sector of electronics. The concentration of the geographical trade pattern of the Central European countries also partly explains why their export performance did not benefit directly from the strong import demand from the Asian NICs, and the Americas. The main impact of

this increasing demand on Central Europe's exports came through indirect effects via its main European trading partners.

However, because of rapidly changing conditions within the Asian NICs and within the other emerging countries, the results presented above have to be taken with extreme caution. While the concentration of trade on the EU15 can be a source of vulnerability, the recent crises in the Asian NICs and in Russia have shown that this orientation of the geographical trade pattern could also serve to limit the direct effects of the crises on Central Europe's export performance. Nevertheless, in the long run, Central Europe should remain aware of the trade growth potential associated with the Asian NICs and the other emerging economies and tend to a greater diversification of exports.

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Annex A - The Constant Market Shares Analysis

According to the new formulation of the CMSA (Milana, 1988), the percentage change in the aggregated export market share of a country, the "total effect" - defined as the ratio between the country's exports and total world exports - has been disaggregated into four components. The total effect is divided into two main effects: the competitiveness effect and the structural effect.

Total effect ≅ Competitiveness effect + Market effect + Product effect + Residual effect

Total effect

$$\left[\frac{\sum_m\sum_p X^{t1}_{m,p}}{\sum_m\sum_p XW^{t1}_{m,p}} - \frac{\sum_m\sum_p X^{t0}_{m,p}}{\sum_m\sum_p XW^{t0}_{m,p}}\right]*100$$

Where:

$X^{t}_{m,p}$ = element (m,p) of the matrix of the reporting country's exports at time t,

$XW^{t}_{m,p}$ = element (m,p) of the matrix of world exports[4] at time t,
m = market index, p = product index,

t0 = initial period, t1 = final period.

"Competitiveness effect"

$$\sum_m\sum_p 0.5*\left[\frac{XW^{t0}_{m,p}}{\sum_m\sum_p XW^{t0}_{m,p}} + \frac{XW^{t1}_{m,p}}{\sum_m\sum_p XW^{t1}_{m,p}}\right]*\left[\frac{X^{t1}_{m,p}}{XW^{t1}_{m,p}} - \frac{X^{t0}_{m,p}}{XW^{t0}_{m,p}}\right]*100$$

[4] If the reporting country is part of the reference group, the data have to be corrected in order to prevent distortions. This correction has a small influence on small market shares, but it can be very influential when the country considered has larger market shares.

"Market composition effect"

$$\sum_m \sum_p 0.5 * \left[\frac{X_{m,p}^{t0}}{\sum_p XW_{m,p}^{t0}} + \frac{X_{m,p}^{t1}}{\sum_p XW_{m,p}^{t1}} \right] * \left[\frac{\sum_p XW_{m,p}^{t1}}{\sum_m \sum_p XW_{m,p}^{t1}} - \frac{\sum_p XW_{m,p}^{t0}}{\sum_m \sum_p XW_{m,p}^{t0}} \right] * 100$$

"Product composition effect"

$$\sum_m \sum_p 0.5 * \left[\frac{X_{m,p}^{t0}}{\sum_m XW_{m,p}^{t0}} + \frac{X_{m,p}^{t1}}{\sum_m XW_{m,p}^{t1}} \right] * \left[\frac{\sum_m XW_{m,p}^{t1}}{\sum_m \sum_p XW_{m,p}^{t1}} - \frac{\sum_m XW_{m,p}^{t0}}{\sum_m \sum_p XW_{m,p}^{t0}} \right] * 100$$

"Residual effect"

$$\sum_m \sum_p 0.5 * \left[\frac{X_{m,p}^{t0}}{XW_{m,p}^{t0}} * \frac{\sum_m XW_{m,p}^{t0} * \sum_p XW_{m,p}^{t0}}{\left(\sum_m \sum_p XW_{m,p}^{t0} \right)^2} + \frac{X_{m,p}^{t1}}{XW_{m,p}^{t1}} * \frac{\sum_m XW_{m,p}^{t1} * \sum_p XW_{m,p}^{t1}}{\left(\sum_m \sum_p XW_{m,p}^{t1} \right)^2} \right] *$$

$$\left[\frac{XW_{m,p}^{t1} * \sum_m \sum_p XW_{m,p}^{t1}}{\sum_m XW_{m,p}^{t1} * \sum_p XW_{m,p}^{t1}} - \frac{XW_{m,p}^{t0} * \sum_m \sum_p XW_{m,p}^{t0}}{\sum_m XW_{m,p}^{t0} * \sum_p XW_{m,p}^{t0}} \right] * 100$$

Annex B - Geographical breakdown

The different geographical areas in CHELEM database are defined as follows:

NorthAm = United States, Canada

SouthAm = Venezuela, Ecuador, Mexico, Brazil, Argentina, Chile, Colombia, Peru, Others in America

EU15 = France, BLEU, Germany, Italy, Netherlands, United Kingdom, Ireland, Denmark, Finland, Sweden, Austria, Spain, Greece, Portugal

EastEur = Ex-USSR, Central Europe, Ex-Yugoslavia

Where:

Ex-USSR = Ex- USSR , then Armenia, Azerbaidjan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Uzbekistan, Russia, Tajikistan, Turkmenistan, Ukraine

Central Europe = Albania, Bulgaria, Hungary, Poland, Romania, Ex-Czechoslovakia (then Czech Republic and Slovakia)

Ex-Yugoslavia = Ex-Yugoslavia, then Bosnia-Herzegovina, Croatia, Macedonia, Serbie-Montenegro, Slovenia

OtherEur = Norway, Iceland, Switzerland, Turkey, Israel, Others in Southern Europe

Afr-ME = South Africa, Algeria, Morocco, Tunisia, Egypt, Gulf, non OPEC Middle East, Nigeria, Gabon, Others in Africa

Japan

SEAsia = Indonesia, India, South Korea, Hong Kong, Singapore, Taiwan, Malaysia, Philippines, Thailand, Pakistan, Brunei, Others in Asia/Oceania, China, Indo-China, Others

OtherAsia = Australia, New Zealand

Annex C - Sector breakdown

The different sectors in CHELEM database are defined as follows:

Energy = Coal (including lignite and other primary energy products), Crude Oil, Natural gas (including all petroleum gases), Coke, Refined petroleum products, Electricity

Food industry = Cereals, Other edible agricultural products, Non-edible agricultural products, Cereal products, Fats (of vegetable or animal origin), Meat and fish, Preserved meat and fish products, Preserved fruit and vegetable products, Sugar products (including chocolate), Animal foodstuffs, Beverages, Manufactured tobaccos

Textile = Yarns and fabrics, Clothing (with fabrics as the main input), Knitwear (made directly from yarns), Carpets and textile furnishings, Leather fur skins and footwear

Wood & paper = Articles in wood, Furniture (made of wood or other materials), Paper and pulp, Printing and publications, Toys, sports equipment and miscellaneous manufactured articles

Chemical = Cement and derived products, Ceramics (including manufactured mineral articles n.e.s.), Glass (flatware and hollow-ware), Basic Inorganic Chemicals, Fertilizers, Basic Organic Chemicals, Paints, colourings and intermediate chemical products n.e.s., Toilet products, soaps and perfumes (including chemical preparations n.e.s.), Pharmaceuticals, Plastics, fibres and synthetic resins, Plastic articles, Rubber articles (including tyres), Unprocessed minerals

Steel industry = Iron and steel-making (including pig iron and sheet steel), Tubes and first-stage processing products, Iron ores and scrap

Non ferrous = Non-ferrous metals, Non-ferrous ores and scrap

Mechanical = Large metallic structures, Miscellaneous hardware, Engines, turbines and pumps, Agricultural equipment, Machine tools, Construction and public works equipment, Specialized machines, Arms and weaponry, Ships (including oil rigs), Aeronautics

Vehicles = Vehicle components, Cars (including motorcycles), Commercial vehicles and transport equipment (including public transport vehicles and railway equipment)

Electrical = Domestic electrical appliances, Heavy electrical equipment, Electrical apparatus (including passive devices)

Electronics = Precision instruments, Watch and clock making, Optics and photographic and cinematographic equipment, Electronical components, Consumer electronics, Telecommunications equipment, Computer equipment (including office equipment)

Others = Precious stones, jewellery, works of art, Non-monetary gold, Not elsewhere specified